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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/621,281	07/20/2000	Dong-Hoon Lee	3430-0126P	4261

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EXAMINER

NGUYEN, HOAN C

ART UNIT PAPER NUMBER

2871

DATE MAILED: 09/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/621,281

Applicant(s)

LEE, DONG-HOON

Examiner

HOAN C. NGUYEN

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-13 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-13 and 15-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/18/2003 has been entered.

Applicants cancelled claims 6 and 14. Therefore, claims 1-5, 7-13 and 15-17 are still pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5, 7-13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US6295109B1) in view of Taiji (JP3228027).

In regard to claims 1 and 10, (Figs 2-3 and 21-22) a transfective liquid crystal display device comprising:

- a liquid crystal display panel having a first transparent substrate (counter substrate), a second transparent substrate (an active-matrix substrate),
- a liquid crystal layer interposed between the first and second transparent substrates as shown in Fig. 2,
- the first transparent substrate having a color filter (col. 48 lines 7-12, it was conventional that color filter is formed on counter substrate for color display),
- the second transparent substrate having a pixel electrode 54 and a reflector,
- the reflector 52 made of an opaque conductive material (claim 4), and having a light transmitting hole which the pixel electrode 54 covers, the light transmitting hole transmitting light;
- a back light device (col. 13 lines 24-32).

wherein

- each pixel region is divided into reflective and transmissive portions (Fig. 21) and a reflection brightness of the transflective liquid crystal display device is improved due to a first reflected light at the reflector of the reflective portion (region R).
- the reflector is made of an opaque (block light) conductive material of aluminum (col. 50 lines 33-35) according to claims 4 and 12;
- the pixel electrode is made of indium-tin oxide (col. 49 lines 34-35) according to claims 5 and 13.
- the hole has a rectangular shape as Fig. 21 shown according to claim 9 and 17;

However, Kubo et al. fail to disclose

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- a transflective film located outside of the second transparent substrate of the liquid crystal display panel, and the transflective film is made of a transmissive material with reflective material scattered therein, wherein (a) transmissive material is made of acrylic-based resin according to claims 3 and 10, (b) the reflective material of the transflective film is selected from a group consisting of Ag and Al according to claims 2 and 11 and concentration of the reflective material scattering on a surface of the transflective film is adjusted according to main mode of the transflective liquid crystal display device; (c) the transflective liquid crystal display device has a reflective main mode, and the concentration of the reflective material is increased according to claims 7 and 15; (d) the transflective liquid crystal display device has a transmissive main mode, and the concentration of the reflective material is decreased according to claims 8 and 16.

Taiji teaches (Figs. 1-3) the transflective LCD device, wherein

- a transflective film (diffusion plate 2) located outside of the second transparent substrate of the liquid crystal display panel 1, and the transflective film is made of a transmissive material of acrylic resin 6 with reflective material (aluminum particles 7) scattered therein and concentration of the reflective material scattering on a surface of the transflective film is adjusted according to main mode of the transflective liquid crystal display device for improving display quality. Therefore, a reflection brightness of the transflective liquid crystal display

device is improved due to the second reflected light at the transfective film of the transmissive portion (region T) to improve display quality.

- the concentration of aluminum particle can be adjusted to modulate transmission, reflection and absorption as Fig. 3 shown according to claims 6 and 14.
- the transfective liquid crystal display device has a reflective main mode, and the concentration of the reflective material is increased as shown in Fig. 3 according to claims 7 and 15.
- the transfective liquid crystal display device has a transmissive main mode, and the concentration of the reflective material is decreased as shown in Fig. 3 according to claims 8 and 16.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transfective liquid crystal display device as Kubo et al. disclosed with (a) a transfective film located outside of the second transparent substrate of the liquid crystal display panel, and the transfective film is made of a transmissive material with reflective material scattered therein, wherein the reflective material of the transfective film is selected from a group consisting of Ag and Al for producing bright picture; (b) a concentration of the reflective material scattered on a surface of the transfective film is adjusted for modulating transmission, reflection and absorption.

Response to Arguments

Applicant's arguments filed on August 8, 2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

A. Kubo and Taiji fail to disclose that concentration of the reflective material scattering on a surface of the transflective film is adjusted according to main mode of the transflective liquid crystal display device.

B. Kubo and Taiji combination raises the hindsight reconstruction.

Examiner's responses to Applicants' ONLY arguments are follows:

A. Taiji discloses (Fig. 3) that concentration of the reflective material scattering on a surface of the transflective film is adjusted according to main mode of the transflective liquid crystal display device. For example, if a concentration of reflective material about 0.1g/cm^3 where a reflection is minimum, thereby the transflective film is adjusted according to main mode of transmissive liquid crystal display device. If a concentration of reflective material larger than 0.25g/cm^3 where a transmission is minimum, thereby the transflective film is adjusted according to main mode of reflective liquid crystal display device.

B. “The reflector 52 made of an opaque conductive material, and having a light transmitting hole which the pixel electrode 54 covers, the light transmitting hole transmitting light” disclosed by Kubo and “a transflective film located outside of the second transparent substrate of the liquid crystal display panel” disclosed by Taiji are two independent elements serving different functions. LCD does not need both

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elements to function. The reflector with the light transmitting hole" and a transfective film further provide into LCD for further improving display quality. Therefore, the combination is proper.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

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August 25, 2003

HOAN C. NGUYEN
Examiner
Art Unit 2871



JAMES DUDEK
PRIMARY EXAMINER